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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/623,959	07/21/2003	Feng Lin	2008.007700/03-0457	6056
23720	7590	12/13/2004		EXAMINER
				CHANG, JOSEPH
			ART UNIT	PAPER NUMBER
			2817	

DATE MAILED: 12/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

JW

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	10/623,959	LIN, FENG	
	Examiner Joseph Chang	Art Unit 2817	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on \_\_\_\_.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-44 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) 28-44 is/are allowed.
- 6) Claim(s) 1-10, 12 and 14 is/are rejected.
- 7) Claim(s) 11, 13 and 15-27 is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 21 July 2004 is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
  1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____ .  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>4/19/04</u> . | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|  | 6) <input type="checkbox"/> Other: _____.                                   |

## DETAILED ACTION

### ***Specification***

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: Phase Detector for Reducing Noise using a Digital Filter and Hysteresis Adjuster.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

**Claims 1-10, 12 are rejected under 35 U.S.C. 102(e) as being anticipated by Iwamoto (US Pat No. 6,489,823).**

**Regarding Claim 1,** Iwamoto discloses in Figure 18 an apparatus, comprising:

a phase detector (228) adapted to determine a phase difference (UP/DOWN) between at least two input signals (ECLK,RCLK);  
a first circuit (224, 225) adapted to generate a control signal (outputs of 224, 225) based upon the determined phase difference (UP/DOWN); and

a second circuit (222,223,226) adapted to:

receive a first signal (ECLK);

receive a second signal (from which 223 receives);

modify the second signal (output signal from 222) based upon the control signal (outputs of 225); and

provide the first signal (ECLK in form of delayed) and the modified second signal (output of 223) as input signals to the phase detector (228).

**Regarding Claim 2**, Fig.18 shows that the second circuit (222) is adapted to modify the first signal (ECLK).

**Regarding Claim 3**, Fig.18 shows that the second circuit (222, 223,226) is adapted to provide the modified first signal (that is output of 222) and the modified second signal (output of 223).

**Regarding Claim 4**, Fig.18 shows that the second circuit (222, 223,226) comprises a fixed delay (226) and an adjustable delay (222, 223).

**Regarding Claim 5**, it is inherent that the delay circuit 226 comprises at least one delay element otherwise it would not be called "delay circuit".

**Regarding Claim 6**, Figure 4 shows the adjustable delay comprises at least two delay element (45), and selectable (43) based on the control signal (output of shift register 24 (Figure 4 is an example of adjustable delay shown in Fig. 18).

**Regarding Claim 7**, Fig.18 shows that the phase detector (228) is capable of providing a signal indicative of the determined phase difference (UP/DOWN) to the first circuit (224,225).

**Regarding Claim 8,** the phase difference UP/DOWN is a binary signal (digital).

**Regarding Claim 9,** the Control signal (output of shift register 224) is formed using the binary phase difference signal (UP/DOWN).

**Regarding Claim 10,** the first circuit (224,225) is adapted to provide a signal (control signals to the delay line 222) indicative of a desired clock signal delay based upon the determined phase difference (UP/DOWN).

**Regarding Claim 12,** Figure 6 shows a latch-type detector.

**Claim 14 is rejected under 35 U.S.C. 102(b) as being anticipated by Jefferson (US Pat. No. 5,642,082).**

Regarding Claim 14, Jefferson discloses in Fig. 7 a delay lock loop, which would necessarily perform the method comprising:

receiving a clock signal (REFCLK);  
receiving a feedback signal (output of 20) formed using the clock signal (from ADVANCED CLOCK);  
generating a control signal (147) indicative of a phase difference (UP and DWN) between the clock signal (REFCLK) and the feedback signal (output of 20); and  
modifying the feedback signal (in the form of UP/DWN) based upon the control signal (147, see Col. 6, lines 27-39).

***Allowable Subject Matter***

Claims 28-44 are allowed.

Claims 11, 13 and 15-27 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: the best prior art of record, Iwamoto and Jefferson, taken alone or in combination of other references, does not teach or fairly suggest means for modifying the feedback signal in responsive to the control signal.

***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Ikeda discloses a DLL having fine and coarse delay circuits.

Tsujino discloses a double phase comparator.

Choi discloses a DLL having counter to control delay means.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph Chang whose telephone number is 571 272-1759. The examiner can normally be reached on Mon-Fri 0700-1730.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Pascal can be reached on (571) 272-1769. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Joseph Chang  
Patent Examiner  
Art Unit 2817